March 18, 1930. H. W. NORTON 1,750,727

ALL METAL RACKET FOR TENNIS AND LIKE GAMES

Filed Oct. 22, 1926



Fig. 9.

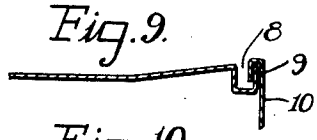


Fig. 10.

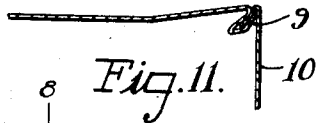


Fig. 11.

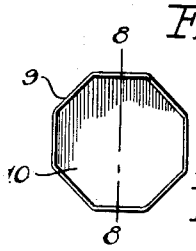


Fig. 7.

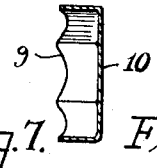


Fig. 8.

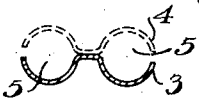


Fig. 3.

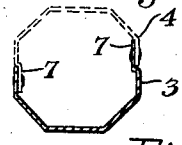


Fig. 4.



Fig. 2.

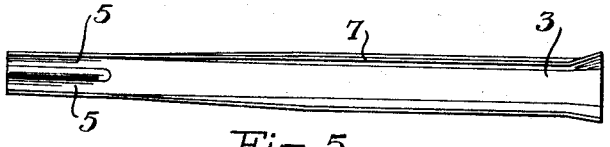


Fig. 5.

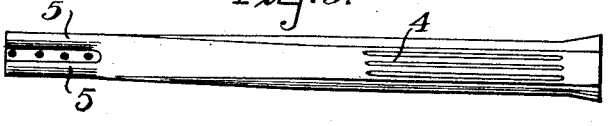


Fig. 6.

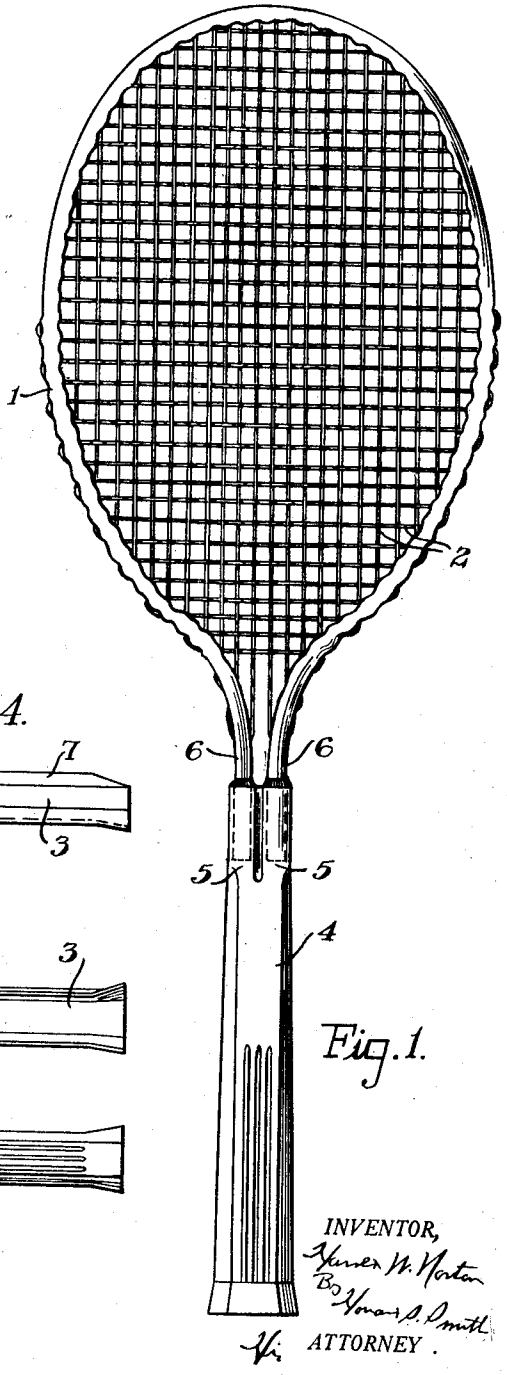


Fig. 1.

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Patented Mar. 18, 1930 1,750,727

UNITED STATES PATENT OFFICE

HAROLD W. NORTON, OF DAYTON, OHIO, ASSIGNOR TO THE DAYTON STEEL RACQUET COMPANY, OF DAYTON, OHIO, A CORPORATION OF OHIO

ALL-METAL RACKET FOR TENNIS AND LIKE GAMES

Application filed October 22, 1926. Serial No. 143,361.

This invention relates to new and useful improvements in all metal rackets for tennis and similar games.

It is the principal object of this invention to provide for tennis and like games, a racket whose stringing, frame and handle are all made of metal such as steel to reduce the cost of its construction and to improve its playing qualities by eliminating torsion and reducing vibration. The elastic metal stringing, which is of the type disclosed in United States Letters Patent No. 1,531,862, granted March 31st, 1925, is received by a tubular metal frame of the type disclosed in United States Letters Patent No. 1,451,836, granted April 17th, 1923. To the legs of the frame is attached an all metal handle preferably stamped from steel in two sections that are later electric-welded together. To these united sections there is secured a cap which is also a stamping.

In the accompanying drawings illustrating my invention, Figure 1 is a plan view of my all metal tennis racket. Figure 2 is a side view of one of the handle sections. Figure 3 is a cross sectional view taken through said handle section on the line 3—3 of Figure 2, showing in dotted lines how the companion section is secured to it. Figure 4 is a cross sectional view taken through said handle section on the line 4—4 of Figure 2, showing in dotted lines how the companion section is united to it. Figure 5 is a bottom plan view of said handle section. Figure 6 is a top plan view of two handle sections joined together. Figure 7 is an end view of the cap which is attached to the united handle sections. Figure 8 is a cross sectional view taken through said cap on the line 8—8 of Figure 7. Figure 9 is a sectional view taken through a handle section formed with a channeled peripheral rear end. Figure 10 is a sectional view showing the first step in securing the cap to said handle section. And Figure 11 is a sectional view showing how the channeled portion of the handle section is crimped around the flange on the cap to firmly secure the latter to the handle.

Referring to the accompanying drawings for a detailed description of my invention, the numeral 1 designates a tubular steel tennis racket and 2 the elastic metal stringing therein of the type before alluded to.

Stamped from suitable metal, such as steel, are two handle sections 3 and 4 such as are illustrated in Figures 1, 2, 5 and 6. Each of these handle sections is formed at its front part with two semi-tubular portions 5, 5 to fit the legs 6, 6 respectively of the frame 1. One side of each handle section is extended to form an inset flange 7 which is adapted to be lapped over the side edge of the other handle section. These handle sections are adapted to be electric welded together at their front portions as shown in Figure 3, and along their lapped side edges as shown in Figure 4, with their semi-tubular portions 5, 5 surrounding the legs 6, 6 of the frame 1 as shown in Figure 1.

Each one of these handle sections is preferably formed at its outer end with a channel portion 8 into which there is adapted to be bent, a flange 9 on a cap 10. The latter is preferably stamped from the same kind of metal as that from which the handle sections are constructed. (See Figures 7, 8, 9 and 10.) As shown in Figure 11, the cap 10 is then pressed inwardly to crimp the walls of the channels 8 of the joined handle sections 3 and 4 firmly against the flange 9 of the cap to firmly secure it to them.

The joined handle sections 3 and 4, secured to the legs 6, 6 of the frame 1 as before described, and, together with the cap 10, being constructed from metal by suitable punch press operations, materially lessen the cost of production of the racket, and impart to it durability, a pleasing appearance and excellent playing qualities. This all metal construction also eliminates the torsion in the racket and reduces vibration therein, thereby improving its playing qualities by making it possible to secure the same results by hitting the ball at one side of the center of the racket as when striking it at the center of the latter.

By homogeneously uniting the metal handle to the metal frame, all the qualities of the head are communicated to the handle, so that when one grips the handle he is at

the same time holding the head. The racket being jointless, is free from vibration which kills its power.

Having described my invention, I claim:

A racket for tennis and similar games, comprising a tubular metal frame, an elastic metal stringing therein, a hollow metal handle secured to the legs of said frame, and formed with channeled ends, and a cap formed with a flange that is crimped between the walls of the channeled ends of said handle to firmly secure it to the latter.

In witness whereof I have hereunto set my hand this 18th day of October, 1926.

HAROLD W. NORTON.